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"The Revolution in Defense Logistics"

Keynote Address of
The Under Secretary of Defense for Acquisition and Technology
Honorable Paul G. Kaminski

to the
12th National Logistics Symposium and Exhibition
Radisson Plaza Hotel, Alexandria VA

October 31, 1995

It is a pleasure to be with you this morning and share my thoughts on the ongoing revolution in defense logistics. This subject is of critical importance to the Department and is very high on my list of priorities.

Since I assumed my present position, I've found that the subject of logistics is of growing interest to our warfighters. I also sense a growing commitment among the many functional communities that are bringing together the complex web of logistics services required to support our warriors. During this same time, I myself have developed a better understanding and appreciation of the absolutely pivotal role logistics has played -- and will continue to play -- in sustaining America's combat effectiveness.

The significance of logistics was recently underscored to the American public when, at the conclusion of Operation Desert Storm, John Chancellor of NBC news said: "this was a logistician's war; logistics, the movement of troops and supplies, made all the difference." That acknowledgment was both timely and true, but also consistent with much historical precedent. At the conclusion of World War II, one German general said that "if we had had American logistics, we would have beaten Russia."

THE GRAND VISION

During the half century since that observation, the role of logistics has grown more crucial as modern warfare has increased in technological sophistication, cost, speed and complexity. More importantly however, the decade ahead promises a quantum shift in the evolution of armed conflict. Our forces are being designed to achieve dominant battlefield awareness and combat superiority through the deployment of fully integrated intelligence systems and technologically superior weapons systems.

You will see a shift in emphasis away from delivery platforms -- ships, aircraft, and tanks -- and towards enhancing those platforms with off board information and highly lethal, extremely accurate weapons. We received an inkling of what combat will look like in the 21st century during Desert Storm and more recently in our support of NATO action in Bosnia. In both cases, unmanned aerial vehicles demonstrated the ability to provide continuous real time battlefield surveillance. Moreover, we have employed weapons with great precision -- the bomb damage assessment photographs in Bosnia do not show the typical pattern of multiple surrounding craters -- there is one crater at the target. We are truly moving to a situation of one target, one weapon. This has been the promise for the past 20 years, now it is becoming a reality.

Today, America has precision strike capability due to a vision some 20 years ago. Today, we are developing a vision for other major changes in warfare -- it is called the *Revolution in Military Affairs* or RMA. We need a complementary vision for the logistics concepts that will support the style of warfare the RMA envisions in our future. Today, I will layout the grand vision -- one with logistics integrated into the overall warfighting framework.

One of the key pillars of the vision is the need to achieve something called "dominant battlefield awareness." It means knowing everything going on in a battlefield -- everything within an area that can measure up to 200 kilometers by 200 kilometers. The primary objective is to know where all the enemy forces are. It also means knowing similar information regarding all friendly forces as well. This concept is the principal motivation behind the Army's efforts to "digitize" the battlefield and Force XXI.

However, dominant battlefield awareness is much more than knowing the static location of forces. Commanders will need to know the combat readiness status or "state vector" for each force element. This includes knowing the logistics posture of friendly and enemy forces as well as having a prediction of the resupply needs of each force element. To complete the logistics picture, available support and the need for future support must be propagated from each force element in the field through the whole support system. This is "total asset visibility." There is a strong linkage between dominant battlefield awareness and total asset visibility -- without the latter, the former is seriously degraded.

Although dominant battlefield awareness is a plus, it is not the whole story. It is a necessary condition, but not a sufficient condition to prevail on the 21st century battlefield. What one really needs is something I call "dominant battle cycle time." This is the ability to turn inside an adversary; to act before the adversary can act. An even more stressing objective is to act before the adversary's dominant battlefield awareness system can see you act. In addition to possessing a dominant battlefield awareness capability, achieving a dominant battle cycle time capability is essential for one to

exercise rapid planning, strong command and control, and superior mobility. And finally, the logistics system must be tailored to support this vision. Responsive logistics support to this concept of "dominant battle cycle time" requires logistics systems which can effectively operate within that "dominant battle cycle time".

A major system integration effort is needed to implement this logistics concept. It is my sense that most of the enabling technologies required for development have been developed. Some of the information technologies that could immediately be brought to support this endeavor include: bar code tagging technology; RF smart response tags; relational data base systems; miniature global positioning system receivers and position reporting transmitters; satellite and fiber command & control communications links; and predictive campaign planning tools.

The next step involves calls for our leadership to more precisely define and shape the broad vision I described above and to engage the principal stakeholders, including warfighters, logisticians and the industrial base in supporting this vision. We are at a unique time where there is a confluence of several events to make realization of this vision possible.

First, an able John Phillips is now inbound as the new Deputy Under Secretary of Defense for Logistics;

Second, we enjoy the leadership of strong and able Joint Logistics Commanders;

Third, there is a demand pull for affordable logistics from the warfighters;

Fourth, a developed technology base is in place;

Fifth, we have a lean industry that is ready to engage; and

Finally, the robust logistics information system modernization initiatives needed to help us tie it all together are underway.

We really do have a unique "alignment of the stars" -- a window of opportunity--to make this grand vision happen.

TODAY'S LOGISTICS CONCEPT

Now, I would like to put this grand vision aside for a moment to connect with where we are today and how we are proceeding toward our vision. The logistics systems, processes, organic capabilities, and inventories that developed over time to

support our cold war strategy reflected the warfighting strategy and -- largely -- the technology of the 50's, 60's, and 70's. At the conclusion of the Cold War we found ourselves with too much of not the right stuff, outdated information management tools, and organic capabilities that didn't address contemporary needs. The passing of the Cold War and the strategy we embraced to fight it -- if nothing else -- demands a fundamental rethinking of our supporting logistics strategy and reengineering of our logistics systems, processes, capabilities and inventories.

Within the department, our warfighters have come to clearly realize that DoD finances are a zero-sum game, that every logistics dollar expended on outdated systems, inefficient or excess organic capability and unneeded inventory is a dollar not available to build, modernize, or maintain warfighting capability. They also realize that the logistics slice of the defense budget is large by any measure -- consuming about 50% of the DoD budget. This alone puts logistics high on my priorities screen.

The Department's logistics systems are complex and different for each service. At the risk of greatly oversimplifying the true situation, I would characterize the DoD logistics system as a "just-in-case" system. It has lots of just-in-case inventory and this is a big deal when the inventory value today is some of $75 *billion*. In addition to buying this inventory, we must pay to store, issue, manage and dispose of it as well.

In contingency operations, if we divert precious airlift and sealift resources to transport just-in-case inventory, it will delay buildup of combat power, impede conflict deterrence and unnecessarily prolong military action with attendant high casualties and other costs. And something I do not think is well understood, we will need to divert combat power to defend inventory storage sites in theater. As an adversary's dominant battlefield awareness capabilities grow, large undistributed inventory will be at risk.

Our "just-in-case" system has evolved over the years in response to a cumbersome acquisition system, little or no in-transit asset visibility, and lack of a fast and responsive transportation system. This system is in stark contrast to the "just-in-time" material management systems being implemented by commercial enterprises and our own industrial partners. Boeing and Caterpillar are two companies that substitute fast, cheap transport for costly inventory. As a result, they have a world wide guarantee of parts delivery in 24 hours with no charge if the delivery timeline exceeds 48 hours, for most of their customers requirements. Federal Express has implemented the kind of transport system that allows other companies to reduce their inventories as well. The interesting point here is that many of these companies employ technologies that were developed for Defense. For example, Caterpillar employs product definition technologies originally developed through our CALS efforts.

Neither the "just-in-case" or "the just-in-time" system are right for the Defense Department. A tailored approach is needed. Right now, the pendulum is too close to

"just-in-case." It needs to swing more to a "just-in-time" position. But 'just-in-time" in warfare means that the wartime transportation system must work. It also means we must have the information system to provide total asset visibility. And finally, we need to train as we intend to fight, including the logistics system.

DEPARTMENTAL INITIATIVES

Recognizing the opportunity and the need, we convened a two day Logistics Offsite meeting in August of this year where we assembled the Department's most senior logisticians to begin to focus on this challenge. I am extremely pleased with the results and productivity of this meeting. I would like to take a few minutes to now highlight four fundamental changes that were recommended at the end of the offsite and that I believe are absolutely essential for the Department to strike the proper balance between efficiency, effectiveness and risk.

First, there is no question in my mind that there are many more areas where private sector logistics support can be substituted for DoD organic capabilities with greater effectiveness, at less cost, and with no added risk.

Second, the Department needs to move more aggressively to substitute the ability to rapidly transport material for our very costly practice of maintaining layers of redundant material stocked around the country and the world "just-in-case" we need it at some specific locale quickly.

Third, and probably, most importantly, we must substitute valid real time information regarding the complete status of all our resources. . . personnel, weapons, equipment, supplies and so forth. . . for our current practice of maintaining redundant capabilities. Here I am talking about getting on with the business of deploying a true total asset visibility program.

And finally, our logistics information systems must be modernized to allow the revolution to take place. A flexible and modernized information infrastructure can be the catalyst for the fundamental changes required to evolve from the "just-in-case" to the "just-in-time" environment.

PRIVATE SECTOR SUPPORT

I would like to briefly discuss each of these three key issues in a bit greater detail. Starting with private sector support, there is substantial evidence that increased use of the private sector has already resulted in improvements in the Department's performance.

Since the end of the Cold War, the department has made substantial progress in reducing our inventories at all levels -- wholesale as well as retail. We have reduced total inventories, measured in constant 1995 dollars, from $104 billion in 1990 to $76 billion in 1994. This trend line of annual decreases in the four billion to five billion dollar range will continue through the year 2001, when inventories are projected to reach $55 billion -- about half the 1990 figure. However, our privatization efforts to date simply are not enough to realize the inventory reductions just outlined.

Critical to these projected inventory reductions are increased use of commercial support alternatives to meet the Department's materiel requirements. We need to be more aggressive in getting pilot programs that have proven to be effective, efficient, and low risk widely deployed throughout the Department. And we need to exercise these systems realistically.

For example, the Defense Logistics Agency has reduced its wholesale medical inventory by 60 percent -- 380 million dollars -- since 1992 by using commercial distribution methods rather than DoD warehouses to distribute medical supplies. These medical inventory reductions have not been confined to the wholesale level. The Walter Reed Army Medical Center itself has taken advantage of the shorter response times available through local commercial distributors, as opposed to those response times offered by DoD warehouse support operations. This action has reduced the level of medical supplies held at Walter Reed by four million dollars.

Since more than 22 billion dollars of the total DoD inventory -- nearly 30 percent -- is comprised of consumable items such as medical supplies, these initiatives are obviously critical to achievement of continuing inventory reductions. Pilot programs are not enough, we need to proceed quickly -- but prudently -- to broadly apply the lessons learned in these pilot programs across the department.

Other initiatives have expanded the use of commercial logistics support capabilities to meet the Department's materiel requirements. We are revising DoD regulations to grant greater authority to field activities to make purchases from local commercial suppliers rather than through the central supply system. This added authority will increase the ability of our activities to use the source of supply offering them the best value and remove slow buying as a motivation for "just-in-case" practices. It will also contribute to our initiative to reduce infrastructure by helping to limit the role of our central supply system to those cases where it really adds value.

Just as applications of commercial support have proven successful in the materiel management area, we can achieve significant savings by extending commercial support in other functional areas -- areas where we have not aggressively pursued privatization. As you can see, we have found that we do not always need an organic capability to ensure fully satisfactory material support.

I believe we are truly moving beyond adherence to the old conventional wisdom that dictated that we own all capabilities tied to support for the warfighter. We have selectively tested the effectiveness and efficiency of outsourcing various logistics support functions and they have been successful. Our immediate challenge now is to move forward with widespread deployment of similar outsourcing privatization efforts across a broad front.

In the area of depot maintenance operations area, for example, our evidence indicates that industry support can substitute for much of the traditional organic capabilities within the Department and perform these functions better, quicker, and cheaper. There are significant opportunities to save tax dollars and reduce government investment in the logistics infrastructure by increasing our use of these private sector capabilities.

We must pursue widespread private sector participation in depot maintenance as well as disposal and distribution to the maximum extent consistent with readiness and cost-effectiveness. The time for testing the concept with pilot programs at the margin of our logistics infrastructure is past. The big payoffs of privatization are yet to be realized. To do so, we must think more broadly of privatization and outsourcing. It is much broader than depots and "privatization-in-place.

TRANSPORTATION BASED LOGISTICS

Let me now turn to my second fundamental change -- the substitution of a rapid, reliable procurement and transportation capability for layer upon layer of inventory. Transportation is one of the primary functions of the DoD logistics system and constitutes a significant portion of the system's total cost. In FY1995, DoD's worldwide transportation program cost users over $10 billion in DBOF dollars. This program supported the movement of materiel, personnel and the maintenance of transportation infrastructure. The DoD relies on the commercial transportation industry to meet 85 percent of its peacetime and wartime transportation requirements. Developing partnerships with the transportation industry to promote a better understanding of military requirements and commercial capabilities to allow for maximum utilization of industry's extensive intermodal capabilities is one of the Department's highest logistics priorities. Commercial systems have been exploiting the increasing affordability of fast transportation and electronic procurement to minimize both amounts and "levels" of inventory. By substituting cheaper transportation for increasingly costly inventory, the private sector was able to drastically reduce both the number of different levels at which inventory was held and the total amount of inventory held. By enhancing our procurement systems, we can significantly reduce the inventories we must hold.

The Air Force is taking the lead in adopting a model of the private sector substitution of fast transportation for logistics infrastructure. Known as "lean logistics," the Air Force program uses improved transportation to achieve a new emphasis on user requirements as the focus of the logistics system. Fast transportation enables the Air Force to replace the traditional caches of "just-in-case" inventory scattered throughout the supply system with a "just-in-time" approach to materiel acquisition and delivery -- one geared to satisfying actual customer requirements when the requirements arise.

The end result of this "lean logistics" approach is consolidation of wholesale inventories, a drastic reduction of base level inventory, and a new focus on customer mission requirements. The Air Force is expecting $4 billion in savings. This is not a hollow forecast -- real dollars have been taken out of the budget. As this approach is adopted throughout the Department, its focus on substituting fast transportation for multiple levels of substantial amounts of inventory will allow us to reach the ultimate goal of lean logistics--better, faster, cheaper.

I believe we have established a high level of confidence among the Department's leadership that transportation can often be a sound substitute for layered inventories. Ongoing major Transportation initiatives and priorities include reengineering the Defense Transportation System, benchmarking of successful private sector business practices such as In-Transit-Visibility and Electronic Data Interchange capabilities, and cooperative policy development between DoD and other Government Agencies. Again, the immediate challenge we face is getting on with the business of deploying a broad based transportation initiative in order to free up billions of dollars we must now commit to inventory investment -- investment that will be unnecessary in a lean logistics environment.

LOGISTICS BUSINESS SYSTEMS

My third fundamental change would be focused on the Logistics Business Systems. Much of our current logistics business systems are characterized by "stovepiped" functionality and an inability to communicate information across functions and among echelons of command. Many of the business and mission rules embedded in these legacy systems support the "just-in-case" requirements of the "Cold War" large scale theater conflict. The underlying technical architecture which supports these systems is largely founded on the obsolete technology of the nineteen seventies. Consequently, a prerequisite to the achievement of the lean logistics environment required to support today's mission is the modernization of our current logistics information systems. A modernized information infrastructure is required to facilitate joint operations, provide timely access to the data, enable an electronic interface with the commercial sector and to support the flexibility required to adapt to the dynamic environment of a post Cold War world.

Current hardware and software technology facilitates the creation of "open architectures" which enable the separation of data from applications. Technology is changing at a pace which requires a flexible architecture that permits a separation of hardware, data management and application upgrades. The computer industry has already evolved to a distinct separation of hardware and software. Furthermore, software has become far more specialized. Companies now specialize in data management, applications, operating environments as well as work stations, mid tier and mainframe specialization. Many manufacturing and distribution companies have significantly reduced data processing staffs and are relying on "off the shelf" data management and application software to support business processes.

All of these factors dictate a revision to a current standard systems development strategy. Rather than absolute standard processes, the strategy should emphasis interoperability and information exchange. Standard processes should only be applied when mission requirements and life cycle costs indicate the need. The strategy should facilitate rapid innovative change by providing an environment that can incorporate change and accommodate different requirements while minimizing disruption to business processes and ensuring interoperability and data exchange.

A common operating environment which accommodates a client server architecture including work station, mid tier server and mainframe business applications must be developed. Existing equipment and base level infrastructures should be evaluated and upgraded to accommodate the common operating environment. Data standardization efforts should continue, however, interim solutions to data exchange should also be evaluated. Efforts to adapt commercial software packages to DoD business processes must be aggressively pursued.

This flexible and modernized information infrastructure can be the catalyst for the fundamental changes required to evolve from the "just-in-case" logistics environment to a lean and adaptable "just-in-time" environment.

TOTAL ASSET VISIBILITY

The last of the four keys to sustaining logistics support to the warfighter with reduced resource availability is the substitution of real time, reliable and cheap information for our very expensive personnel and materiel resources. Those of you in the audience who served in country during the Vietnam conflict surely remember the seemingly endless streams of unidentified, often unnecessary, and frequently lost material that flowed into South Vietnam. In the two decades that followed that war, not much has changed in the Service's ability to know precisely what their resources consisted of, where they were, and what their operational status was.

This shortcoming was clearly demonstrated during operation Desert Storm, when half of the 40,000 bulk containers shipped into the theater had to be opened in order to identify their contents. We sent twice as much materiel to the Persian Gulf as we needed, we didn't know where half of it was at any given moment in time and most of it failed to contribute in any way to our success on the battlefield.

While Desert Storm combat gave us a glimpse of the nature of tomorrow's armed conflict -- it was strictly a Cold War logistics effort that substituted brute force and the deployment of massive quantities of materiel for a well managed logistics support effort. I am not confident that the we would avoid a similar logistics fate today, should we be called upon to mount a serious response to a major regional conflict. As I mentioned earlier, the competition for scarce national resources simply will not permit this type of excess in the future.

The tool we are in the process of developing to give us control of our resources is called total asset visibility. The Army is the Department's executive agent for this initiative. The goal of Total Asset Visibility is to give us real time information regarding the quantity, location, and condition of virtually all DoD assets anywhere at any time. And if we recognize the coalition nature of present and future conflicts, also becomes obvious that there is significant potential associated with integration of our Total Asset Visibility system with that of our allies.

Total Asset Visibility will provide the real-time logistics information needed for the US to fight and win without an unacceptable drain on our national wealth. The technology needed to attain real-time logistics information already exists. Here again, the challenge is to develop and deploy a broad based workable system. The Department is planning to operationally deploy a pilot asset visibility program before next summer. Assuming that test program performs well, I am looking forward to the rapid roll-out of a DoD-wide system.

SUMMARY

In summary, my vision for the revolution in logistics is enabled by improved information systems and faster, cheaper transport systems. The availability of the technologies to field these systems has created a window of opportunity to move logistics into the 21st century -- to catch up with and enhance the evolving warfighting concepts. In this construct, the revolution in logistics is one of the major components in the overall Revolution in Military Affairs.

Since the technology is largely developed, what we need is vision, leadership, commitment and stakeholder engagement on the part of the warfighters, logisticians, developers and industry to make this revolution a reality. The stars are all aligned to

make this happen. There is demand pull from the warfighters. There is an able team in the Joint Logistics Commanders. There is technology on the shelf.

The time has come to act. I ask you to work with me -- become agents of change, owners, and builders.

Thank you all.